

## Durable Permanent Pavement Striping or Paint?

This question has been asked of the ODOT product evaluation team since durable markings arrived on the market. Why use them, when they are so expensive? There have been a considerable number of products tried over the years but few have survived the test of time and torture from traffic.

Durable pavement markings were developed as an alternative to the pavement markers that were glued to the pavement. Pavement markers work well for a time, but they are labor-intensive to install and are easily damaged by equipment such as snowplows and graders. They also lose their reflectivity quickly from UV exposure or damage from traffic. Studded tires also do considerable damage over time, so a better mousetrap was needed – and along came Durable Permanent Pavement Striping material.

Durable pavement striping products require expensive special equipment for application, but the striping can last many years, even in areas where studded tires are used. Pavement markers can still be used to enhance traffic lines, if maintenance budgets allow.

### Meeting ODOT Specifications

Durable striping must respond well to wear under traffic and meet minimum requirements for reflectivity, both at the time of placement and after a period of time. **The bottom line is that ODOT wants traffic lines to be present 24 hours a day, 365 days a year.**



Durables vs. paint: The project at the top used all inlaid durable striping. Below, solvent-based paint was used, but the centerline was an inlaid durable. Both projects are about 8 months old; the bottom edge lines were painted with regular paint only a few months prior to this picture.

A number of durable products have been evaluated. Some durables were not compatible with the existing stripe and would require removal prior to the application. Others simply did not have enough reflective ability at the time of application. Some of the spray applications, both paint and epoxy types, had difficulty with thickness, glass bead retention and adhesion.

There are six categories of methods for applying durable striping:

- A) Profiled (w/bumps)
- B) Non Profiled (w/o bumps)
- C) Inlaid
- D) Inverted Profile w/bump
- E) Inverted Profile
- F) Spray

Methods D and E are great for rainy conditions. Profiles (bumps) give auditory signals and are great for lane edge delineation, but care should be

taken around bike routes. The inlaid method seems to work best where snow and ice removal is involved. (There are, however, some rubber mounted snowplow shoes that are reported to work well to protect traffic lines, surface treatments and open-graded mixes, yet still remove ice patches.)

The best solution for a cost-effective application might be a combination of the methods listed above. Each Region has experts who can help decide which types of lines to use on each project.

### **Manufacturer's Warranties**

The special provisions in ODOT striping contracts contain a warranty section where manufacturers must warranty the product, as follows:

1) For surface-mounted thermoplastic materials, provide a 3-year manufacturer's warranty that all markings will stay in place, and will maintain a minimum 150 millicandellas for white and 125 millicandellas for yellow.

2) For methyl methacrylate materials, provide a 4-year manufacturer's warranty that all

markings will stay in place, and will maintain a minimum 150 millicandellas for white and 125 millicandellas for yellow.

Durable stripes should last more than 3 or 4 years, but the warranties ensure proper installations and almost guarantee that ODOT will get many years of useable lines. ODOT has some sections being repaired at this time, but because the various manufacturers are responsible for their product for the warranty period, ODOT has not had to spend it's own money to repair these projects.

The environmental evaluation has not yet been completed to assess potential impacts of the durable stripe material when the pavement is overlaid or recycled.

Currently, the durable stripe products seem to be the most cost effective when considering the warranty versus the number of times the painted stripe must be replaced each year to provide public safety. This is in addition to worker safety considerations, limited resources for retracing, and new requirements by FHWA for nighttime visibility.

*For more information about durable striping, contact:*

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